

CLAIMS

What is claimed is:

1. A system for obtaining video of a moving fixation point within a scene, comprising:
 - a control unit;
 - a plurality of non-moving image capturing devices positioned around the scene, wherein the scene is within a field of view of each image capturing device;
 - a plurality of image generators, wherein each image generator is in communication with one of the image capturing devices, and wherein a first of the image generators is responsive to a command from the control unit; and
 - a surround-view image sequence generator in communication with each of the image generators and responsive to the command from the control unit for generating a surround-view video sequence of the fixation point based on output from certain of the image generators.
2. The system of claim 1, further comprising an inter-image capturing device calibration database in communication with the surround-view image sequence generator.
3. The system of claim 1, wherein the first image generator is responsive to a viewing angle command and a zoom command from the control unit.
4. The system of claim 1, wherein the surround-view image sequence generator is for generating the surround-view video sequence of the fixation point within the scene by

outputting an image from certain of the image generators in sequence according to the position of the image capturing devices around the scene.

5. The system of claim 4, wherein the surround-view image sequence generator includes:

a mapping module for outputting a command to each of the image generators other than the first image generator based on the command from the control unit; and

an image sequencing module in communication with each of the image generators for outputting the image from certain of the image generators in sequence according to the position of the image generators around the scene.

6. The system of claim 4, further comprising an inter-image capturing device calibration database in communication with the mapping module.

7. The system of claim 1, wherein each of the image capturing devices includes a camera bank including a plurality of non-moving cameras.

8. The system of claim 7, wherein at least one of the image generators is in communication with an intra-bank calibration database.

9. The system of claim 1, wherein each of the image capturing devices includes a non-moving panoramic wide field of view camera.

10. The system of claim 1, wherein each of the image capturing devices is selected from the group consisting of a non-moving panoramic wide field of view camera and a camera bank having a plurality of non-moving cameras.

11. The system of claim 1, wherein the image capturing devices are periodically positioned around the scene.

12. The system of claim 1, further comprising:
a moving camera having a field of view within the scene; and
an additional image generator in communication with the moving camera and in communication with the surround-view image sequence generator, wherein the additional image generator is responsive to a second command based on the command from the control unit.

13. The system of claim 12, wherein the moving camera includes a pan/tilt camera.

14. The system of claim 1, further comprising a computer vision module in communication with the control unit.

15. The system of claim 1, wherein the computer vision module is further for selecting a second image generator to be responsive to the command from the control unit.

16. The system of claim 1, further comprising a second control unit, wherein one of the image generators is responsive to a command from the second control unit, and wherein the

surround-view image sequence generator is further for generating a second surround-view video sequence of a second fixation point within the scene based on output from certain of the image generators and the command from the second control unit.

17. The system of claim 16, wherein the first image generator is responsive to the command from the second control unit.

18. A system for obtaining video of a moving fixation point within a scene, comprising:

a control unit;

a plurality of non-moving image capturing devices positioned around the scene, wherein the scene is within a field of view of each image capturing device;

a plurality of image generators, wherein each image generator is in communication with one of the image capturing devices, and wherein a first of the image generators is responsive to a viewing angle command and a zoom command from the control unit;

a mapping module for outputting a viewing angle command and a zoom command to each of the image generators other than the first image generator based on the viewing angle command and the zoom command from the control unit; and

an image sequencing module in communication with each of the image generators for outputting an image of the fixation point from certain of the image generators in sequence according to the position of the image generators around the scene.

19. The system of claim 18, further comprising an inter-image capturing device calibration database in communication with the mapping module.

20. The system of claim 19, wherein each of the image capturing devices is selected from the group consisting of a non-moving panoramic wide field of view camera and a camera bank having a plurality of non-moving cameras.

21. The system of claim 20, wherein the image capturing devices are periodically positioned around the scene.

22. The system of claim 20, further comprising a computer vision module in communication with the control unit.

23. The system of claim 18, further comprising a second control unit, and wherein: one of the image generators is responsive to a viewing angle command and a zoom command from the second control unit;

the mapping module is further for outputting a second viewing angle command and a second zoom command to each of the image generators other than the image generator responsive to the second control unit based on the viewing angle command and the zoom command from the second control unit; and

the image sequencing module is further for outputting an image of a second fixation point within the scene from certain of the image generators in sequence according to the position of the image generators around the scene.

24. The system of claim 23, wherein the first image generator is responsive to the viewing angle command and zoom command from the second control unit.

25. The system of claim 18, further comprising:
a moving camera having a field of view within the scene; and
an additional image generator in communication with the moving camera and in communication with the mapping module and the image sequence generator.

26. The system of claim 25, wherein the moving camera includes a pan/tilt camera.

27. A system for obtaining video of a moving fixation point within a scene, comprising:
a plurality of non-moving image capturing devices positioned around the scene, wherein the scene is within a field of view of each image capturing device;
a plurality of image generators, wherein each image generator is in communication with one of the image capturing devices;
means for controlling a viewing angle and zoom parameter for each of the image generators; and
means for generating a surround-view video sequence of the fixation point based on output from certain of the image generators.

28. The system of claim 27, wherein each of the image capturing devices is selected from the group consisting of a non-moving panoramic wide field of view camera and a camera bank having a plurality of non-moving cameras.

29. The system of claim 27, wherein the image capturing devices are periodically positioned around the scene.

30. The system of claim 27, further comprising means for generating commands for the viewing angle and the zoom parameter.

31. The system of claim 27, further comprising:
a moving camera having a field of view within the scene; and
an additional image generator in communication with the moving camera, wherein the means for controlling the viewing angle and zoom parameter for each of the image generators is further for controlling a viewing angle and zoom parameter for the additional image generator, and wherein the means for generating a surround-view video sequence of the fixation point is further for generating the surround-view video sequence additionally based on output from the additional image generator.

32. The system of claim 31, wherein the moving camera includes a pan/tilt camera.

33. A method for obtaining video of a moving fixation point within a scene, comprising:

capturing a first plurality of images of the fixation point with a plurality of non-moving image capturing devices positioned around the scene, wherein the scene is within a field of view of each image capturing device;

generating a viewing angle command and a zoom command for each image capturing device; and

generating a second plurality of images, wherein each image of the second plurality of images corresponds to an image that a virtual camera located at a position of each of the image capturing devices would capture based on the first plurality of images, the viewing angle command for each image capturing device, and the zoom parameter for each image capturing device.

34. The method of claim 33, further comprising outputting the second plurality of images in sequence according to the position of the image capturing devices around the scene.

35. The method of claim 33, further comprising:

generating a second viewing angle command and a second zoom command for each image capturing device; and

generating a third plurality of images, wherein each image of the third plurality of images corresponds to an image that a virtual camera located at a position of each of the image capturing devices would capture based on the first plurality of images, the second viewing angle command for each image capturing device, and the second zoom parameter for each image capturing device.

36. The method of claim 35, further comprising:

outputting the second plurality of images in sequence according to the position of the image capturing devices around the scene; and

outputting the third plurality of images in sequence according to the position of the image capturing devices around the scene.